

# Notice of Allowability

Application No.

10/748,543

Applicant(s)

SALVI ET AL.

Examiner

Howard L. Williams

Art Unit

2819

## -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the response filed 05 Nov. 2004.
2. ☒ The allowed claim(s) is/are 1-5, 7-15, 17-24, 26 and 27.
3. ☒ The drawings filed on 30 December 2003 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All    b) ☐ Some\*    c) ☐ None    of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).


\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

### Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08),  
Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit  
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_\_
7. ☒ Examiner's Amendment/Comment
8. ☐ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

  
Howard L. Williams  
Primary Examiner  
Art Unit: 2819

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

In the Claims:

1. (Original) An adaptive analog-to-digital converter (ADC) system comprising:  
  
an automatic gain control (AGC) controller for receiving both in-band and out-of-band signals from a radio frequency (RF) receiver and producing an AGC control signal therefrom;  
  
a digital signal processor (DSP) for interpreting the AGC control signal and providing at least one adjustment signal to an ADC; and  
  
wherein the ADC uses the at least one adjustment signal to control current drain based upon an RF signal received by the AGC controller.
2. (Original) An adaptive ADC system as in claim 1, wherein the AGC controller receives an on-channel signal and an in-band detection signal for determining the amount of on-channel interference received by the RF receiver.
3. (Currently amended) An adaptive ADC system as in claim 2, wherein the AGC controller processes an RF signal input and a baseband signal input for producing at least one radio signal strength indication (RSSI) signal used as the ADC control signal.
4. (Original) An adaptive ADC system as in claim 1, wherein the at least one adjustment signal adjusts quantizer bit resolution.
5. (Original) An adaptive ADC system as in claim 1, wherein the at least one adjustment signal controls current bias used by a bit quantizer in the ADC.
6. ([Currently] Canceled)
7. (Original) An adaptive ADC system as in claim 1, wherein the at least one adjustment signal adjusts the current bias used by a reference capacitance in the ADC.

8. (Original) An adaptive ADC system as in claim 1, wherein the at least one adjustment signal adjusts over-sampled clock speed in the ADC.

9. (Original) An adaptive analog-to-digital converter (ADC) system that utilizes digital signal processing to control operational parameters of an ADC comprising:

an automatic gain control (AGC) controller for receiving at least one input signal from a radio frequency (RF) receiver and providing an AGC control signal in response thereto;

a digital signal processor (DSP) for receiving the AGC control signal and providing at least one adaptive ADC control signal based on desired communication protocol requirements; and

an ADC for converting received analog input signals to a digital format and dynamically controlling current drain based upon the at least one adaptive control signal.

10. (Original) An adaptive ADC system as in claim 9, wherein the AGC controller receives both a sum-of-squares (SOS) signal from an RF receiver and an in-band signal for determining the quality of a received RF input signal.

11. (Original) An adaptive ADC system as in claim 9, wherein the AGC controller receives an input to the ADC, an output from the ADC and the at least one input signal.

12. (Original) An adaptive ADC system as in claim 11, wherein the AGC controller produces a received signal strength indication (RSSI) control signal based upon the SOS signal and the in-band signal.

13. (Original) An adaptive ADC system as in claim 12, wherein the RSSI signal is provided to the DSP for dynamically controlling the at least one adaptive control signal.

14. (Original) An adaptive ADC system as in claim 9, wherein the at least one adaptive ADC control signal controls the number of bits used by an ADC quantizer.
15. (Original) An adaptive ADC system as in claim 9, wherein the at least one adaptive ADC control signal controls the amount of current used by an ADC quantizer.
16. ([Currently] [c]Cancelled)
17. (Original) An adaptive ADC system as in claim 9, wherein the at least one adaptive ADC control signal controls the amount of charging current used by a reference capacitance in the ADC.
18. (Original) An adaptive ADC system as in claim 9, wherein the at least one adaptive ADC control signal controls clock speed of the ADC.
19. (Currently amended) A method for adjusting the operational parameters of an analog-to-digital converter (ADC) for providing optimal performance with minimum current drain comprising the steps of:
  - receiving a radio frequency (RF) input signal from a receiver;
  - producing at least one automatic gain control (AGC) signal from the received RF input signal;
  - processing the AGC (control) signal using a digital signal processor to provide at least one adjustment control signal; and
  - receiving the at least one adjustment control signal at an ADC where the at least one adjustment control signal is used to control functionality of the ADC to maximize efficiency based upon the received RF input signal.
20. (Currently amended) A method for adjusting the operational parameters of an ADC as in

claim 19, further comprising the step of:

utilizing a sum-of-squares signal calculation and an in-band signal to produce the at least one AGC signal.

21. (Currently amended) A method for adjusting the operational parameters of an ADC as in claim 20, wherein the at least one AGC signal is a radio signal strength indication (RSSI) signal.

22. (Currently amended) A method for adjusting the operational parameters of an ADC as in claim 19, wherein the AGC signal is processed based on desired communications protocol requirements.

23. (Original) A method for adjusting the operational parameters of an ADC as in claim 19, wherein the at least one adjustment control signal controls quantizer bit resolution in the ADC.

24. (Original) A method for adjusting the operational parameters of an ADC as in claim 19, wherein the at least one adjustment control signal controls bias current used by a quantizer in the ADC.

25. ([Currently] [c]Cancelled).

26. (Original) A method for adjusting the operational parameters of an ADC as in claim 19, wherein the at least one adjustment control signal controls the amount of charging bias used by a reference capacitance in the ADC.


27. (Original) A method for adjusting the operational parameters of an ADC as in claim 19, wherein the at least one adjustment control signal controls the reference clock speed of the ADC.

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Your Reference: SC12577J  
Art Unit: 2819

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Any inquiry concerning this communication should be directed to Howard L. Williams at telephone number 571.272.1815. The Patent and Trademark Office has a new central facsimile number for application specific correspondence intended for entry, it is 703-872-9306.

11/23/04  
Voice 571.272.1815

  
Howard L. Williams  
Primary Examiner  
Art Unit 2819